

The Emerging Co-epidemics of TB-Diabetes

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“Diabetes is fueling the spread of Tuberculosis”. [1]

Tuberculosis infects, about 9.0 million people worldwide every year. It killed 1.5 million people in the year 2014 [2]. It is a communicable disease of the lung, which is transmitted from person to person. Tuberculosis can be cured if the proper medicines are taken for the prescribed period of time under direct supervision of the health worker (called DOTS program) [3].

Similarly, there are 347 million diabetes patients globally in 2015 with almost 80 percent of them living in poorer countries. Once presumed to be a disease of the better-offs, the disease has reversed to the people of lower socioeconomic status because of the economic development [4]. It is a non-communicable disease and caused mostly by behavioral factors such as inadequate physical activity, unhealthy diet, smoking, and high alcohol intake. It is a lifetime disease that cannot be cured but only controlled [5].

In the SAARC Region in 2013, there were an estimated 3.0 million new cases of TB, equivalent to 184 cases per 100 000 population. This carries 34 percent of the global burden of TB incidence. Four of the eight Member Countries in the Region are among the 22 high burden countries, with India accounting for 23 percent of the world's TB cases. Among 3.0 million incident TB cases 1.2 million are still missing from the health system [6]. Likewise, 71.5 million of the world's 366 million diabetic patients are from SAARC countries which comprise 20 percent of the global. In a list of countries most affected by diabetes, India comes second with 53 million patients. Bangladesh ranked tenth with over seven million diabetic patients and expects to become seventh by 2030 while Pakistan hosts around seven million patients, expected to double by 2025 [7].

Studies have shown that diabetes patients are two to three times more likely to acquire TB than the non-diabetics. Hence, because the number of diabetes patients is increasing globally, there has been a corresponding rise in the number of TB patients as well. Diabetes impairs the immunity system of our body thus make it vulnerable to getting tuberculosis [8-10]. Further, tuberculosis patients with diabetes respond poorly to TB treatment than those without diabetes and are therefore at a higher risk of tuberculosis treatment failure, death, and relapse after cure. Diabetes thus needs to be addressed both in tuberculosis prevention and to optimize tuberculosis treatment responses. Conversely, tuberculosis, similar to other infections, can worsen sugar control and complicate the clinical management of diabetes [11,12]. Diabetes may even lead to a non-favorable outcome of tuberculosis treatment such as the Multi Drug Resistant Tuberculosis, in which the regular TB drugs do not work. Further, it is estimated that about 46 diabetes are undiagnosed worldwide, most of them in poor countries. Such undiagnosed and poorly regulated diabetes contribute immensely to the rising diabetes-related tuberculosis. Thus, all the stakeholders, including the policy makers, program managers, health workers, researchers and advocates must show urgency in curbing the emerging epidemics of Tuberculosis-Diabetes [11].

Tuberculosis kills more people every year than any other infectious diseases except HIV/AIDS. It may be interesting to note that about two billion people, which is more than a quarter of the global population, have the TB bacteria inside their bodies (called as latent infection). In the majority of these people, the bacteria remain dormant for one's entire life, never making the person sick (called as active disease). However, the risk of progressing the latent infection to active Tuberculosis disease increases significantly among the diabetes [1].

Globally, there are many countries that have a high number of tuberculosis cases and simultaneously facing a rising burden of diabetes. This will naturally affect the effort of both the Tuberculosis and Diabetes control program. Various researches have found that the proportion of diabetes among tuberculosis patients ranged from 16-50% in different parts of the world. It was also seen that this proportion tends to be higher among the older population and among those living in rural areas. However, more scientific research is needed to know the definite contribution of diabetes towards the global burden of tuberculosis.

The global tuberculosis control strategy aims to reduce the global tuberculosis incidence to 10 percent per year by 2025 from the present 2 percent per year. Similarly, it targets to reduce death

among the TB cases to 6.5% from the current 15% [4]. This needs further improvement in the health care delivery system, including collaborative activities on tuberculosis and diabetes to improve tuberculosis prevention, treatment, and care. SAARC is in line with the global strategy. Moreover, the SAARC Tuberculosis and HIV Center have planned to initiate drafting TB-Diabetes strategy in the near future to the looming epidemics of the tuberculosis and diabetes.

Given the rate of urbanization and changing diet and lifestyle, the prevalence of diabetes is unlikely to go down in the near future. However, the adverse effect of diabetes on tuberculosis can be reduced through improved diabetes diagnosis and management. Similarly, finding all cases of tuberculosis, treating and curing them may serve to manage the diabetes [13].

Finally, the screening for active tuberculosis in the people with diabetes may be the initial strategy to cope with the emerging co-epidemics which could improve early detection of tuberculosis as this could be one the key global strategy [14]. Every year worldwide, about a third (almost 3 million) of all people who develop active tuberculosis are not accounted for in national tuberculosis surveillance systems, either because they are not diagnosed or the cases are not notified. To screen people with diabetes for tuberculosis, diabetes has to have first been diagnosed and therefore, screening is conditioned on improved access to diabetes diagnostic services. Increases access to health services are key to improve the early diagnosis of both diseases, and needs to be integrated across health conditions and health sectors.

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